

No subsidies? No TSMC

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The Taiwanese chipmaker begins work on German fab as other microchip investments flounder



Alex Irwin-Hunt August 29, 2024



The FDI angle

- TSMC secured €5bn in German state aid, covering about half its €10bn+ Dresden semiconductor facility.
- This huge package could trigger subsidy demands from other chipmakers that await approval for promised incentives.

Why it matters: TSMC's Dresden fab highlights Europe's reliance on subsidies to attract crucial semiconductor investments, setting a precedent that may complicate future FDI in the sector.

TSMC has been granted EU approval for Germany's €5bn state aid package to build a new semiconductor facility in the city of Dresden — the largest subsidy so far in the bloc's campaign to secure microchips amid rising tensions between the US and China over technology supply chains.

At a groundbreaking event in Dresden on August 20, European Commission president Ursula von der Leyen described TSMC's first facility on the continent as an "endorsement for Europe as a global innovation powerhouse".

But the strategic project, first announced in August 2023, underlines the need for massive public support to secure production facilities for microchips critical for everything from cutting-edge technology to everyday gadgets.

The state aid package will cover about half of the more than €10bn of investment that TSMC expects to make with its partners Netherlands-based NXP Semiconductors, German chipmaker Infineon Technologies and auto supplier Bosch, which all have an existing presence in Dresden.

"Government support is necessary to enable this project," a TSMC spokesperson told **fDi**.

"Subsidies will help to create a more balanced semiconductor ecosystem as we need a level playing field to enable Europe to be a competitive investment environment for semiconductor industry to attract the industry players."

The plant (fab), which will be known as the European Semiconductor Manufacturing Company (ESMC), is expected to be 70% owned by TSMC, with the other partners each holding 10%. Production is expected to start by the end of 2027.

TSMC's FIRST EUROPEAN FACTORY IN GERMANY

- Company: TSMC, Taiwan
- Location: Dresden, Saxony, Germany
- Joint venture partners: Bosch, Germany; NXP, Netherlands; Infineon, Germany
- Combined investment: €10bn+
- German state aid package: €5bn
- Nameplate monthly production capacity: 40,000 300mm wafers
- Expected direct job creation: 2000

Ripple effect

TSMC's investment is the latest in the "continuation of a long line of investments since the 1990s", says Frank Bösenberg, the managing director of Silicon Saxony, a local microelectronic industry association, hinting at a local microelectronic cluster that already features the likes of GlobalFoundries, Infineon and Bosch.

Despite its strong microchip heritage, generous incentives were critical to securing TSMC's fab.

“Without the subsidies, I don’t see this project materialising,” says Mr Bösenberg. “The limited number of regions that are still able to host the semiconductor industry offer a comparable amount of subsidies. We see this as a kind of requirement to be considered at all.”

The European Chips Act, which came into force in September 2023, aims to double the EU’s share of global chip production capacity from around 10% today to 20% by 2030. In May, the EU approved Italy’s €2bn state aid measure to support [STMicroelectronics build a silicon carbide power devices plant in Sicily](#).

But given that TSMC’s subsidy is the largest approved under the EU Chips Act to date, industry insiders worry it could have a ripple effect across other planned microchip manufacturing projects.

“The huge state aid package for ESMC has set a precedent,” said an executive at a large European semiconductor company, who spoke to **fdi** on the condition of anonymity, and who expects the €5bn package to be the basis of future legal cases by other chipmakers to demand more subsidies for their EU projects.

US chipmaker Wolfspeed, which announced in February 2023 plans to build a fab in the German state of Saarland, has delayed construction until it has finalised incentives. “The timing and amount of these incentives are uncertain and could happen, if at all, in fiscal 2026 and beyond,” read the company’s latest annual report published this month.

Intel is also yet to start construction in Magdeburg as it awaits approval for a package worth as much as €10bn subsidy from the German government.

An uphill battle

Beyond access to incentives, the greatest hurdle to the success of the ESMC plant will be to attract and train people for the 2000 highly skilled engineering jobs expected to be created. An exchange program launched by TSMC, the Free State of Saxony and the Technical University of Dresden welcomed its first German science, technology, engineering and mathematics students for careers in the semiconductor industry. But experts expect there to be bumps along the road for ESMC to start production in 2027.

“The timelines are aggressive. ESMC will face blocks in setting up on schedule,” said the semiconductor executive, who expects ESMC to struggle to build its fab in Dresden on time, due to long lead times for chip making equipment, cultural clashes and delays related to securing water and energy. In May 2024, TSMC delayed the start of production at their second fab in Arizona from an original target of 2026 to 2028 for similar reasons.

“Everything is proceeding as planned”, the company said in an email.

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